Jackson COLLEGE

Compare and Contrast BS-Mechanical Engineering with BS-Advanced Manufacturing

Graduates of an Associate Degree in Applied Science with an advanced manufacturing focus will fill high technology and high demand jobs in a variety of industries that produce parts, equipment, or systems which are used in almost every field imaginable. Typical job duties may include part inspection, machinery set-up, equipment troubleshooting, high technology equipment operation, preventative maintenance and repair, machine building, quality control support functions, system installations and basic system integration. These graduates will likely report to others and have few or no direct reports.

Graduates with extensive hands-on skills, knowledge, and abilities are needed to fill the positions mentioned. Along with the positions mentioned there are other higher level positions that also will need specially educated, trained, and talented individuals. In addition to the Associate level coursework, a Bachelor level Advanced Manufacturing graduate will have coursework in specialty areas such as technical writing, budgeting and estimation, supervision, and organizational behavior. This will create employable graduates who can lead and manage other team members. More intensive course work will include rapid prototyping, laser and water jet systems, injection molding, blow molding, stamping, high speed machining, and casting. The Bachelor of Science in Advanced Manufacturing graduate will be expected to handle duties such as new fabrication line setup and management, new product cost and time estimation, production supervision, high level system integration, production cost reductions, and quality control functions.

While a graduate from a Bachelor of Science in Mechanical Engineering may perform some of the duties listed in this critique, this may only be possible after specialized on the job experience. Mechanical engineering programs generally are more theoretical in nature and allow a graduate to consider the appropriate inertial forces, environmental factors, regulations, safety considerations, and materials that are required to generate plans for parts and equipment in order to meet customer needs. Few mechanical engineering graduates have hands-on experience, or the level of expertise, that would allow them to operate effectively in a production based manufacturing atmosphere. In contrast, the Bachelor of Science in Advanced Manufacturing graduate is wholly and completely prepared to take the design from the mechanical engineer and produce it in a cost effective manner.

The advanced manufacturing and mechanical engineering graduates are not in competition with one another in the job market; rather they complement each other, allowing specialization in their individual areas. Mechanical engineers can work in concert with advanced manufacturing graduates to provide engineering services AND the manufacturing production support required for today's manufacturing facilities.

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